



EXAMINING GROUP 2835

PATENT

Docket: 2207/4641

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

APPLICANT : Christopher B. FARMER  
SERIAL NO. : 08/974,545  
FILED : November 19, 1997  
FOR : HORIZONTAL MOUNT FOR A PROCESSOR  
GROUP ART UNIT : 2835  
EXAMINER : Lisa Lea-Edmonds

ASSISTANT COMMISSIONER FOR PATENTS  
Washington D.C. 20231

**ATTENTION: Board of Patent Appeals and Interferences**

**APPELLANT'S BRIEF**

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This brief is in furtherance of the Notice of Appeal, filed in this case on January 17, 2001

**I. REAL PARTY IN INTEREST**

The real party in interest in this matter is Intel Corporation. (Recorded November 19, 1997; Reel 8831/Frame 197):

**II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals.

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### III. STATUS OF THE CLAIMS

Claims 1-18 are pending in this application. Claims 1-15 and 18 are rejected under 35 U.S.C. § 103(a). Claims 16 and 17 are rejected under 35 U.S.C. § 102(b). This appeal is an appeal from the rejection of claims 1-18

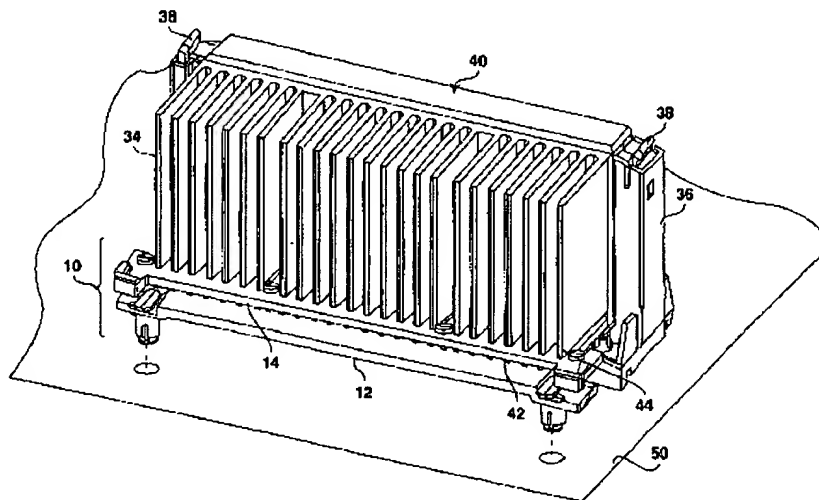
### IV. STATUS OF AMENDMENTS

In a Request for Reconsideration filed January 9, 2001, Appellant noted that he had "discovered that the attempt to amend claim 13 in the amendment file May 4, 2000 was improper. The amendment should have been directed to claim 14. Claim 14 was subsequently amended in the Amendment of August 24, 2000. Thus, Appellant submits that the attempted amendment to claim 13 should not be entered, and claim 13 remain as filed." In an Advisory Action dated January 22, 2001, the Examiner confirmed that the mistaken amendment has not been entered.

### V. SUMMARY OF THE INVENTION

It has been conventional to mount processors, including cartridge processors with edge connectors in a vertical orientation by plugging into a connector in a mother board. An example of such mounting is illustrated by *Feightner et al.*, U.S. Patent 5,748,446. As clearly illustrated and described, the

processor card assembly 40 has its single edge inserted in a connector on the mother board, with the assembly 40 extending vertically from and perpendicular to the mother board (See col. 3, lines 19-43). With such



**Feightner et al.**

arrangements relatively complex retention structures are needed, again as evident from Feightner et al.

Deviating from the conventional arrangement, in embodiments of the present invention, as shown in Fig. 3 reproduced here, a connector 44 on the mother board is oriented so as to receive the edge connector 46 of the processor assembly 40 in a horizontal orientation. In other words when mounted on the mother board, the processor assembly is parallel to and spaced from the mother board. As described and claimed, guides 41 and 42, for example, slots, can be provided to guide and retain the module 40 which has guide rails 43 and 45 which may be received in the slots. Mounting can be such as to make the processor visible and replaceable from outside the computer casing.

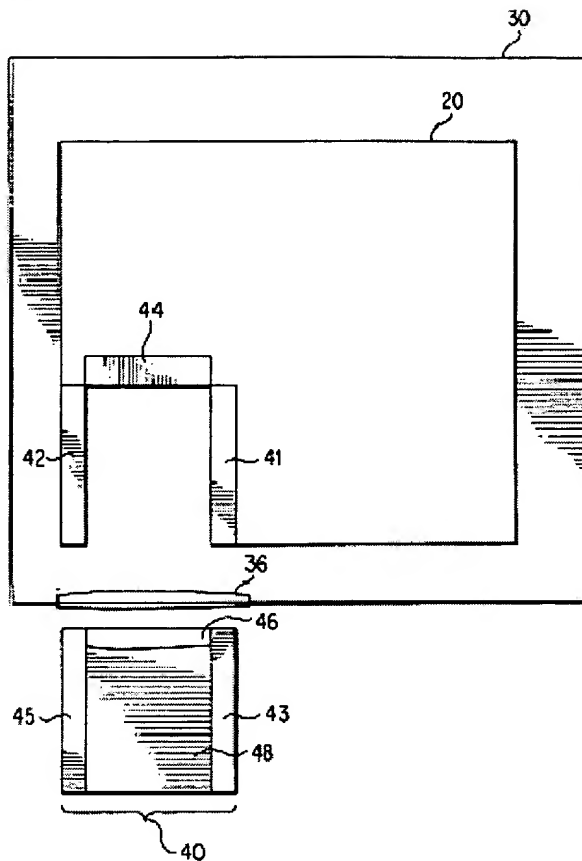


FIG. 3



FIG. 4

In the embodiment illustrated in Fig. 4, the connector 44 has receiving prongs 50 and 52 for receiving the module 40. Characteristics found in all of the claims thus include:

- A. An connector (or receiving slot) on the motherboard which receives an edge connector of a cartridge processor; and

B. When mounted, the processor module is parallel to and displaced from the mother board. (In contrast to other prior art arrangements where the processor is mounted directly on the board).

## **VI. ISSUES**

A. Do claims 16 and 17 patentably distinguish over U.S. Patent No. 5,530,620 (*Sangveraphunsiri*) under 35 U.S.C. §102(b)?

B. Do claims 1-5 and 8-11 patentably distinguish over *Sangveraphunsiri* in view of U.S. Patent No. 5,603,618 (*Hayakawa*) under 35 U.S.C. §103(a)?

C. Do claims 6 and 7 patentably distinguish over *Sangveraphunsiri* in view of U.S. *Hayakawa* and U.S. Patent No. 5,748,446 (*Feightner*) under 35 U.S.C. §103(a)?

D. Do claims 12-15 and 18 distinguish over *Sangveraphunsiri* in view of *Hayakawa* and U.S. Patent No. 5,576,935 (*Freer*) under 35 U.S.C. §103(a)?

## **VII. GROUPING OF CLAIMS**

The claims may be grouped as follows. A separate basis of patentability exists for each group.

A. Claims 16 and 17.

B. Claims 1-5 and 8-11.

C. Claims 6 and 7.

D. Claims 12-15 and 18.

The claims in these groups do not stand or fall together unless so indicated below in the argument.

## VIII. ARGUMENT

### A. The References

#### 1. *Sangveraphunsiri*, U.S. Patent 5,530,620

*Sangveraphunsiri* is the Examiner's primary reference. This Patent is directed to accessible upgrade capability. Its primary attention is directed to ensuring that the cartridge cannot be inserted or removed with the power on.

Particularly in Fig. 20, Fig. 21, and Fig. 22, it describes arrangements for plugging the cartridge into a motherboard. In the embodiment of Fig. 20, the arrangement is conventional. The cartridge 540 extends vertically from the motherboard 104. It is plugged into an edge connector 548 mounted on the motherboard. In the second embodiment shown in Fig. 21 and Fig. 22, a bay 562, customarily used for a floppy disk drive is modified to have an adapter 564 to receive a cartridge 520. A rear connector 566 is mounted in the bay 564 to receive the edge connector on the cartridge 520. Extending connector 588 is a cable 578. At the end of the cable 578 is another connector 548' which mounts to the motherboard.

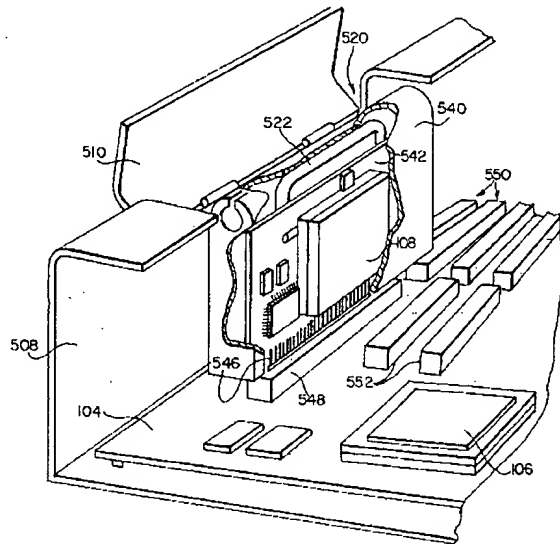


FIG. 20

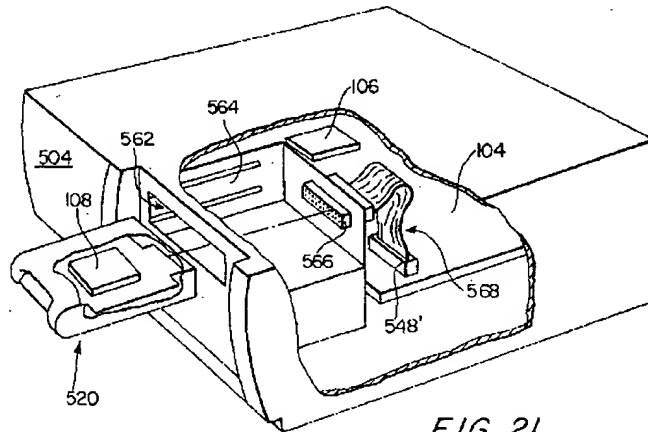


FIG. 21

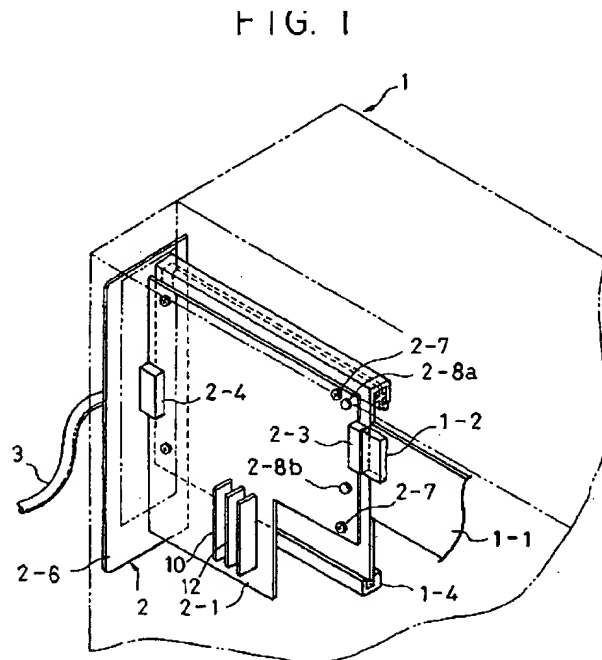
Thus, *Sangveraphunsiri* suggests two manners of mounting. The first is a conventional vertically extending arrangement where the processor is perpendicular to the motherboard. In the second, a bay normally use for a disk drive is converted to receive the processor module and a cable 568

run from the bay to the motherboard. When mounted in this arrangement, the processor module is not plugged into a connector on the motherboard.

2. ***Hayakawa et al.* U.S. Patent 5,603,618**

*Hayakawa et al.* illustrates a printer device body 1. Mounted vertically within this device body is a printer control board 1-1. A

controller board 2-1 plugs into the printer control board. The controller board, although it contains a CPU 10, is not, however, a processor cartridge or even a processor board. It is a controller board that includes among other things a CPU. Furthermore, the structure shown and described does not have a case as do the claimed processor cartridge and Sangveraphunsiri. It does have guides to for guiding the board, which is teaching which the Examiner refers to. However, beyond the possible suggestion of the use processor module to a motherboard.



3. *Feightner et al.* U.S. Patent 5,748,446.

As alluded to above, *Feightner et al.* is directed a conventional perpendicular mount of the processor. Thus, as indicated above, it discloses a processor module 40 which is retained in a retention unit. This patent also discloses a heat sink and heat sink support apparatus the heat sink is attached to the processor card assembly and heat sink support device restrains movement of the heat sink. As indicated in col. 3, beginning at line 19, the heat sink is attached to a thermal plate of the processor card assembly which is then latched into the retention system. The

invention disclosed in this patent then provides support for the heat sink which would otherwise apply undesirable forces to the processor card assembly.

Thus, the teaching one gets from is patent is that of mounting a processor card assembly with an attached heat sink perpendicular to the motherboard, using a conventional retention mechanism and also providing a support mechanism for the heat sink.

#### **4. Freer et al. U.S. Patent 5,576,935**

*Freer et al.* discloses a conventional arrangement for inserting expansion cards into a computer, plugging vertically into a motherboard.

### **B. All Claims Distinguish over the Art**

#### **1. Claims 16 and 17 are not anticipated by *Sangveraphunsiri***

Claim 16 requires "inserting the edge connector of said processor *in a connector on said motherboard*, said processor having an orientation *parallel ...*" (Emphasis supplied). In *Sangveraphunsiri*, Figs. 21 and 22 illustrate inserting the module into the bay of a disk drive which has a connector therein. Thus, the connector is not "*on said motherboard.*" In Fig. 20, the connector is on the motherboard but the processor is not "*parallel.*" Thus, *Sangveraphunsiri* does not anticipate claim 16, nor claim 17 dependent thereon. Furthermore, the clear suggestion here is that, when one wants to insert a processor module into a connector on the motherboard, it should be inserted vertically. Thus, *Sangveraphunsiri* teaches away from the claimed arrangement of a horizontal insertion into a connector on the motherboard. Beyond this, in her rejection of claim 1, the Examiner admits that *Sangveraphunsiri* "lacks a clear teaching of ... the motherboard being connected to the edge connector in a parallel orientation as claimed." In view of this admission, it is not-seen how the Examiner can maintain that claims 16 and 17, which also include these limitations can be anticipated.

**2. Claims 1-5 and 8-11, are not obvious over *Sangveraphunsiri*, in view of *Hayakawa et al.***

As noted above, *Sangveraphunsiri* teaches two ways of mounting. In one the connector is on the motherboard and the module is perpendicular; in the other the connector is not on the board and the module is horizontal or parallel. The connector 548' on the board does not receive an edge connector of the cartridge. As noted above, the Examiner admits that all limitation of claim 1 are not present in *Sangveraphunsiri*.

Thus, the Examiner recognizes that *Sangveraphunsiri* lacks a teaching of guide rails and guide slots (found in claims 2 and 3) and a teaching of the motherboard connected to the edge connector in the parallel orientation as claimed (found in claim 1). To find this teaching the Examiner turns to *Hayakawa et al.* In *Hayakawa et al.*, a controller board 2-1 plugs into a printer control board 1-1. The controller board, although it contains a CPU 10, is not, however, a processor cartridge or even a processor board. It is a controller board that includes among other things a CPU. Furthermore, the structure shown and described does not have a case as do the claimed processor cartridge and *Sangveraphunsiri*. Board 1-1 does not have an edge connector. Rather a connector 2-3 mounted on the board 1-1 plugs into a connector 1-2 mounted on board 1-1.

Even if one assumes the obviousness or using guides as taught by *Hayakawa et al.*, combining this reference with *Sangveraphunsiri* does not lead to the claimed combination. One would simply have the arrangement of Figs 21 and 22 with guides. The Examiner has not indicated why or how, despite the clear teaching of *Sangveraphunsiri*, one would modify that reference, to eliminate the bay, and plug the module into a connector directly on the motherboard.

Regarding claims 4, 7 and 8, these claims are allowable as dependent on claim 1. The remaining claims in this group further distinguish from the cited art.



The Examiner contends that it would have been further obvious to have the processor visible from the exterior side (Claim 5). Appellant submits that if this were so obvious, *Sangveraphunsiri* would have done so. Appellant previously requested that, should the Examiner maintain this position, the Examiner provide support as required by MPEP 2144.03. Similarly, with regard to claims 9-11, claiming details of the lock of claim 8, which the Examiner admits are not found in the reference, support was requested, if the Examiner continued to maintain rejection of these claims. No support has been provided and, thus, the rejection of claims 5 and 9-11 should be withdrawn for this additional reason.

**3. Claims 6 and 7 are not obvious over *Sangveraphunsiri*, in view of *Hayakawa et al.* and further in view of *Feightner et al.***

Granted, that the use of a heat sink with a processor is well known. Thus, Appellant maintains that claim 6 is allowable as dependent on claim 1. However, with regard to claim 7, Appellant submits that the Examiner has pointed to no teaching in the reference of providing a heat sink on the motherboard and also including the claimed connector for connecting the heat sink to the processor, particularly in combination with the other elements claimed. Note that in *Feightner et al.* a heat sink connected to the processor is supported. Here, the connector connects the heat sink to the processor. Once again, the rejection is unsupported despite Appellant's request for the citation of specific art to support the rejection. Thus, claim 7 should be allowed for these additional reasons.

**4. Claims 12-15 and 18 are not obvious over *Sangveraphunsiri*, in view of *Hayakawa et al.* and further in view of *Freer et al.***

Claims 12, 14 and 18 include a receiving slot connected to (or on) the motherboard with guides for the cartridge processor with an edge connector, with the processor received in an orientation parallel to and displaced from the motherboard. Claims 13 and 15 add details of the guides, *i.e.*, that they are rails and slots. *Freer et al.* is cited by the Examiner as teaching a motherboard having a slot for receiving a processor in addition to the basic elements alleged to be taught by *Sangveraphunsiri*, in view of *Hayakawa*. For the reasons given above in

connection with claims 1-3, for example, Appellant does not believe that the basic elements are present as the Examiner contends, using the teachings of the two primary references. *Freer et al.* adds nothing to these basic references. It discloses a conventional arrangement for inserting peripheral cards (not processors) into a computer, plugging vertically into the motherboard. A teaching of vertically plugging a processor module into the motherboard was already taught by the primary reference in Fig. 20. Thus, adding this teaching would only lead one to the arrangement shown in Fig. 20 of *Sangveraphunsiri*. The Examiner has pointed to no motivation to do otherwise. Thus, claim 12-15 and 18 should also be allowed.

#### **5. The art as a whole teaches away from the claimed arrangement**

Appellant submits that if one is faced with mounting a processor module with an edge connector to a mother board, the art as a whole would suggest, if the module was to be plugged into an edge connector on the motherboard, plugging that board into the motherboard in a perpendicular orientation. Only two of the references, *Sangveraphunsiri* and *Feightner et al.* are directed to plugging of processor modules. In both, when plugged into a connector on the motherboard, they are in a perpendicular arrangement. The other reference showing an edge connector, *Freer et al.* also plugs in perpendicularly. Thus, Appellant submits that there is no teaching or suggestion of doing other than what *Sangveraphunsiri* does, plugging into a connector on the board perpendicularly or utilizing a bay with a connector coupled by a cable to the motherboard. Neither of these arrangements meet the claimed limitations.

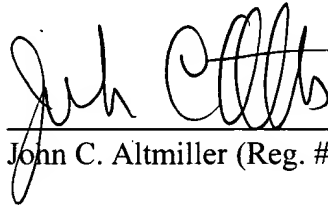
### **CONCLUSION**

The Examiner has failed to show that each and every element of claims 16 and 17 are found in *Sangveraphunsiri*. Thus, these claims are not anticipated. Regarding the remaining claims, the Examiner has failed to establish a *prima facie* case of obviousness with regard to any claim. The primary reference simply does not teach the basic elements found in all claims. The secondary references do not make up for the deficiency. Furthermore, there is no suggestion of combining the remaining references with the primary reference. The only place one finds an suggestion is in Appellant's specification.

A number of rejections are completely unsupported despite repeated requests for support by Applicant. What the Examiner has done is to engage in impermissible hindsight reconstruction after reviewing Appellant's disclosure. Motivation leading to obviousness must be established from the prior art. The Examiner has not done this. Furthermore, even if combined, elements of the claims would be missing. Appellants therefore respectfully request that the Board of Patent Appeals and Interferences reverse the Examiner's decision rejecting claims 1-18 and direct the Examiner to pass the case to issue.

The Commissioner is hereby authorized to charge the appeal brief fee of \$310.00 and any additional fees which may be necessary for consideration of this paper to Kenyon & Kenyon Deposit Account No. 11-0600. A copy of this sheet is enclosed for that purpose.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'John C. Altmiller', is written over a horizontal line.

John C. Altmiller (Reg. # 25,951)

Date: March 14, 2001

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**Claims On Appeal**  
**U.S. Serial No. 08/974,545**

1. A mount to receive a cartridge processor having an edge connector, comprising:  
a motherboard connector to be mounted on a motherboard to receive said edge connector with said processor in an orientation parallel to and displaced from said motherboard.
2. The mount of claim 1 further comprising:  
guides to restrain said processor from movement.
3. The mount of claim 2, wherein said guides comprise a pair of guide rails attached to said processor, and a pair of guide slots attached to said motherboard, with said guide slots configured to receive said guide rails.
4. The mount of claim 1, further comprising a case surrounding said motherboard, said case having a slot through which said connector can be inserted into said receiving slot without removing said case.
5. The mount of claim 3, wherein said case has an interior side and an exterior side, and wherein said processor is visible from said exterior side.
6. The mount of claim 1, wherein said processor includes a heat sink.
7. The mount of claim 1, wherein said motherboard includes a heat sink, further comprising a heat sink connector for connecting said heat sink to said processor.
8. The mount of claim 1, further comprising a lock for preventing unauthorized removal of said processor from said motherboard.
9. The mount of claim 8, wherein said lock comprises teeth locks.
10. The mount of claim 8, wherein said lock comprises a spring lock assembly.
11. The mount of claim 8, wherein said lock comprises a clear plate for covering said slot in said case, and a lock assembly for locking said plate to said case.  
A mount for a processor, comprising:  
a motherboard;  
a single edge connector cartridge processor having a connector;  
a receiving slot connected to said motherboard and configured to receive said connector;  
guides for guiding said connector into said receiving slot, wherein said processor is parallel to and displaced from said motherboard after said connector is inserted into said receiving slot.

12. A mount for a processor, comprising:  
a motherboard;  
a receiving slot connected to said motherboard and configured to receive a connector for a processor;  
guides for guiding said connector into said receiving slot, wherein said processor is parallel to and displaced from said motherboard after said connector is inserted into said receiving slot.
13. A mount for a processor, comprising:  
a motherboard;  
a single edge connector cartridge processor having a connector;  
a receiving slot connected to said motherboard and configured to receive said connector;  
guides for guiding said connector into said receiving slot, wherein said processor is horizontal to and displaced from said motherboard after said connector is inserted into said receiving slot.
14. A mount for a processor, comprising:  
a motherboard;  
a single edge connector cartridge processor having a connector;  
a receiving slot connected to said motherboard and configured to receive said connector;  
guides for guiding said connector into said receiving slot, wherein said processor is parallel to and displaced from said motherboard after said connector is inserted into said receiving slot.
15. The mount of claim 13, wherein said guides comprise a pair of guide rails connected to said processor, and a pair of guide slots connected to said motherboard, with said guide slots configured to receive said guide rails.
16. A method of mounting a cartridge processor having an edge connector on a motherboard comprising:  
inserting the edge connector of said processor in a connector on said motherboard, said processor having an orientation parallel to and displaced from said motherboard.
17. The method of claim 16 wherein in said inserting step, said processor is inserted in said motherboard in a first direction, the method further comprising:  
restraining said processor from movement in directions mutually perpendicular to said first direction.
18. A horizontal mount for a processor, comprising:  
guides to guide a connector into a receiving slot on a motherboard; and  
a single edge connector cartridge processor having a connector coupled to said motherboard in a direction parallel to and displaced from said motherboard.